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SILVICULTURE
Harvest Cuttings
Salmon Mc Plot 1

December 26, 1941

MEMORANDUM ON 1941 MEASUREMENT OF PERMANENT SAMPLE PLOT 1, SALMON NATIONAL FOREST

Time and Personnel

Plot No. 1 was remeasured October 28 to November 1, 1941, by E. L. Mowat of the IF&RES and Ranger A. H. Wheeler of the Salmon National Forest. Essentially full time for 4½ days was spent on the job, with very little lost time, since it was possible to drive practically to the plot each day from the Hughes Creek ranger station, about 5 miles distance. About 3 hours was spent on examination of reproduction transect, and one hour on photographs, the remainder on diameter and height measurements and tagging. Weather was rainy one day and cold most of the time, but not bad enough to greatly affect working time. Considerable time was spent in rechecking heights, log grading, and tree classifying, as described later - work which is not involved in every remeasurement.

Tagging Trees

On new trees (those reaching 3.6 inches dbh since 1936) the number series was continued, from 475 to 570 (except 517-18, which were found to have been placed on old trees with lost tags). Twenty-two old tags were missing; they were replaced with original numbers.

Following usual procedure, tags were placed at 4½ ft. above average ground level, except where this point fell at a whorl or other abnormality, in which case the tag was placed and measurement made at the nearest point free from abnormal swelling or interference. Tags were usually faced in the direction from which future height measurements will probably be taken (most present measurements made with pole).

Nails were pulled out about an inch on trees where it appeared probable that increment of the next 5 or 10 years would reach or nearly approach the head of the nail. On only a few trees was growth forcing the tag at this time. The old 10d nails placed in 1909 were pulled out and discarded where found, to avoid possible future trouble if the trees should be cut.

Tags were not removed from dead trees.

Diameter Measurement

Diameters were measured at tag height, with the tape just above and resting upon the nail. The tape was pulled reasonably tight, but loose bark, etc. was not removed except for a slight smoothing with the hand on newly tagged trees. On a few trees with tags formerly placed at nodes, measurement was made in the nearest internodal space free from branch interference.

Height Measurement

The procedure described for 1936 height measurements (see note of January 10, 1938) was followed - use of staff abney - measuring from face of tree in direction tag faces (with exceptions for leaners and others as indicated), sight to 5-foot point at base, and pole heights on small trees.

Heights were measured on every tree north of the reproduction transect and a few others nearby; thereafter only on new trees. In compilation of the data it may be desired to fill in the missing heights for 1941 on the basis of average growth or curved heights of measured trees. Care should be taken in this case to segregate the data by age classes or otherwise because the height growth of the predominantly older slow-growing trees in the northwest portion of plot will not apply to the rapid growing poles in the south portion of plot. As far as mature or nearly mature trees are concerned (and that includes practially all over 100 feet high and some shorter ones), the height increment of the last five years is negligible and could be so considered in computations.

It was rather disappointing that the 1941 heights did not check better than they did with the 1936 heights, since the same procedure and similar care were used in the two measurements. Whenever the 1941 measurement failed to check with what would be expected, the sights and readings were repeated and distance measurement checked if any chance of error. If satisfied with the accuracy of 1941 recorded height, a check mark was placed above the figure. In many cases there was either failure to show any increase when the appearance of the tip indicated some growth or the present height was from 1 to 3 feet less than previous record. The only possible explanation we can think of is the chance of abney being out of adjustment in 1936. It was carefully checked and adjusted in 1941 and usually has been on all jobs. We are not sure that it was done on this specific job in 1936. There may also have been a tendency to show a check with or an increase over the 1931 height when there was really negligible growth or when the former was in error. Tip injury or breakage was suspected and a number of trees did show slight crooks, but these were generally 7 or more years back. On two nearby trees felled for age determination and height growth inspection, the height growth for past five years was only about 1 to 1½ feet (trees 130 years old but only 6 and 8 inches in diameter). Thus, growth is really slow, but there at least should have been no "shrinkages." The young pole trees measured by extension pole usually showed reasonable increases such as would be estimated by observation of whorls. In general, the 1941 figures should be considered correct where there are inconsistencies with previous data not explained by notes on top breakage, etc.

Tree Classification

Trees have been classified according to the Dunning scheme since 1931. The Dunning class of new trees was recorded, together with crown class and defects, the latter two in code. There has been negligible change in the Dunning class of older trees since 1931; in a few cases there might be some argument with the classes assigned, but on the whole they are still acceptable.

In 1941, the class of each tree according to the Keen system was recorded. The classes for pine were used as defined. For Douglas-fir trees somewhat higher limits for the various Keen crown-vigor classes were required, as follows:

A. - Long; 65 percent or more of total height in crown.

B. - Average; 40-65 percent or more of total height in crown.

C. - Short; 20-40 " " " " " " " "

D. - Very short; less than 20 percent of total height in crown.

It may be noted in future examinations of the plot that the distinction between Keen age classes 1 and 2 is not consistent throughout. On the basis of external appearance many of the smaller trees, such as in the group where the trail passes through and in the draw in north end of plot, were first classed as age 1. When it was noted how slow they were growing, similar trees outside the plot were felled for age determination and found to be 100 to 130 years old. Insufficient allowance had been made for poor site and crowded stand effects and difference in general appearance of trees from those on the Boise and Payette Forests. The age class was changed to 2 on most of those previously recorded and these facts were kept in mind on the remainder of the plot, but there were still puzzling cases that may still not be correct. The various criteria of actual age, "physiological age," height, black bark, and horizontal limbs conflicted in several cases. The Keen classification is new to Region 4, and it may require considerable study and trial-and-error use to determine its applicability and what modifications may be necessary in parts of the region. In its initial application in 1941 we have been trying to hold as closely as possible to Keen's definitions to see how the unmodified classes relate to growth rates and mortality. Such changes and adjustments as appear desirable will be made later. The use of the system on Douglas-fir is very questionable, but may be better than nothing until proper definitions, etc. are worked out.

Log Grading

For all living and recently dead trees which contained 1 or more logs to an estimated 8" d.i.b. top, logs were graded according to the descriptions made up by the Pacific Northwest Forest and Range Experiment Station. Grading was done rather hurriedly on most of this plot, but since few

high-value logs were found, the recorded grades are believed sufficiently accurate. Supplementary to the grade record the estimated amount of defect expressed as tenths of the gross volume of the log is noted by a circled figure just above that designating the log grade.

In grading Douglas-fir logs, the same criteria were used as for ponderosa pine, except that no grade 3 is used. Douglas-fir is rarely cut for shop lumber and shop type of logs are rare. The occasional logs that might appear to fit the description for grade 3 are designated as 3a.

Defects

Defects have been noted in code since 1931. New defects are noted in red pencil in the right hand defect columns, using the recent standard scheme of noting the general class of defect in one column and the specific nature or degree in the following column. (Ordinary lead pencil used for new trees, Nos. 475-570.)

Dead Trees

The record for trees dying since last measurement includes Keen tree class, log grades, and estimated cause and year of death. Diameter was measured only if tree died within the past year.

Photographs

It is regretable that photographs of this plot have never been made to depict stand conditions and changes over the years. Four photos (size 2½"x4-1/4") were taken with personal camera this year, but because of poor light conditions, etc. they are not satisfactory. A set of prints and the negatives are filed in plot folder for such small value as they may have, but an effort should be made to obtain a few good official pictures at the next opportunity.

Reproduction Transect

The procedure of reproduction tally was as in the past. The 1941 tally was made in the next small column to the right in each size class. Surprisingly few 1941 seedlings were found, in contrast to the condition in Boise Basin and on the Payette. Such as were found are tallied only in the "1941" column, not in the 0 - 1/2' class. The majority of the new pine seedlings appearing in the 0 - 1/2' class are of 1940 origin--again a contrast to Boise Basin, where practically no seedlings started in 1940. General observations of trees on the plot and elsewhere in the locality show that there was no special abundance of pine cones in the fall of 1940. The 1941 crop of cones is very small on the plot but some open growing trees along the highways on North Fork and main Salmon bear good crops this fall. Douglas-fir was not observed very closely, but in general seems to be producing some cones about every year, as in Boise Basin.

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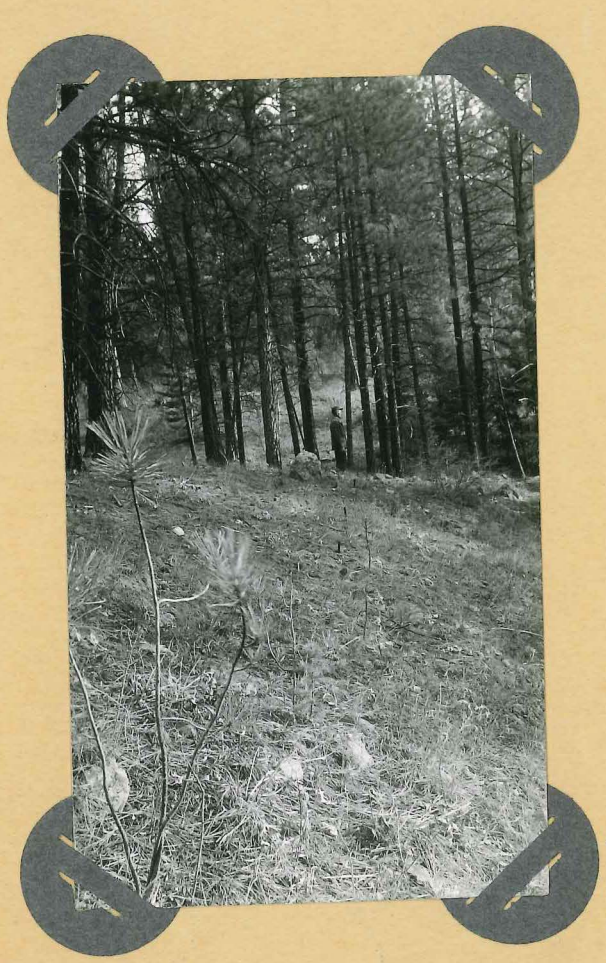
Additional note: Some 104 trees of the original number series 1 to 408 had lost their tags and were retagged with numbers of the 2801-3000 series in 1931. In the coded compilation of 1931 the original numbers were used. It would simplify both the field recording and to some extent the compilation if these trees were retagged with their original numbers at the next examination. It is not essential, however, but a decision should be made on the point before 1941 data are copied to new forms, as will be necessary before next measurement.

Mc Plot 1, Salmon N.F.

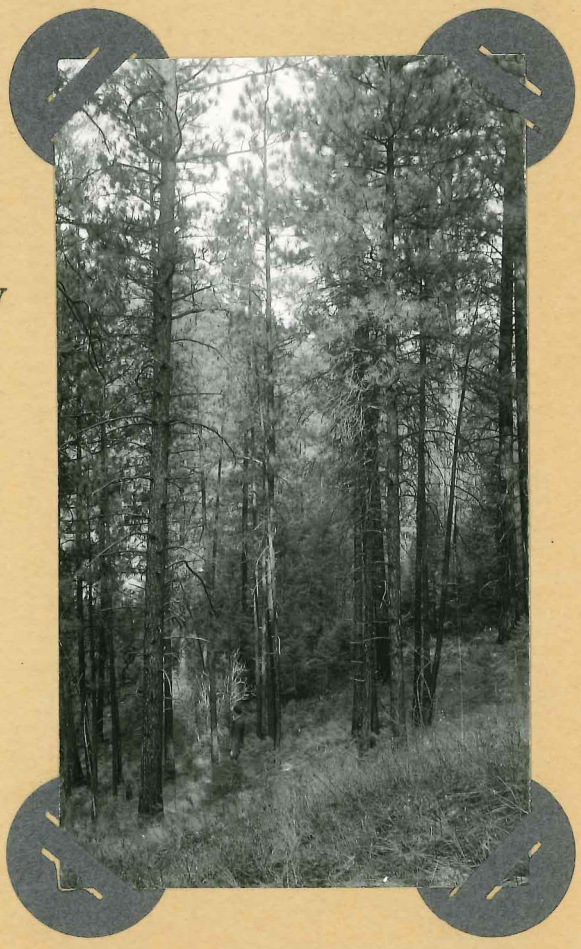


← Photo #1.

Methods-of-cutting plot #1, Ditch Creek, Salmon N.F. Transect No.1, looking northeast along transect from tree by Sta. 0, which is also Corner #2 of the plot. Besides the slow-growing seedlings visible in foreground there are numerous 1- and 2-year-old seedlings present. In the background (where man stands) is a group of immature pines typical of this portion of plot.
Nov. 1, 1941. Cloudy. E.L.M.

Photo #2. →

View of dense immature stand in southwest portion of plot; growth is very slow in these trees, suggesting stagnation (or possibly only reaction to unfavorable weather of past decade).
Nov. 1, 1941. Cloudy. E.L.M.
Photo point - Tree #2879.



Mc Plot 1, Salmon N.F.

Photo #3.
Methods-of-cutting plot #1, Ditch Creek, Salmon N.F. Upper central portion of plot, looking westward from Tree #397. Shows stand of mixed ages, including some Douglas-fir. Growth rate of some of these trees better than those shown in photos 1 and 2.
Nov. 1, 1941. Dull sun. E.L.M.

Photo #4.
Southeast portion of plot, looking northwest from a catfaced 20" pine outside the plot, about 35 ft. SE of Tree #472. Shows in foreground thrifty understory of poles, with scattered mature "seed trees".
Nov. 1, 1941. Cloudy. E.L.M.